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December 20, 2012

Project No. 04-01-101-001

Mr. Michael Friend, P.E.
Staff Engineer III
Special Projects Branch
Bureau of Corrective Actions
Nevada Division of Environmental Protection
2030 E. Flamingo Road, Suite 230
Las Vegas, Nevada 89119-0818

Re: Titanium Metals Corporation
Henderson, Nevada Facility
NDEP Facility ID # 000537
*2012 Annual Groundwater Monitoring Report, Response to NDEP's November 20, 2012
Comments*

Dear Mr. Friend:

Please find attached TIMET's response to the NDEP's November 20, 2012 comments on the 2012 Annual Groundwater Monitoring Report for the Titanium Metals Corporation (TIMET) facility. This document has been authored by Ms. Candy Friday with CdFriday & Associates and myself.

If you have any questions regarding this submittal, please do not hesitate to contact me at (702) 563-0600.

Sincerely,
BROADBENT & ASSOCIATES, INC.

Kirk J. Stowers, EM-1549 (exp. 10/11/14)
Associate Geologist

JURAT: I, Kirk J. Stowers, hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state and local statutes, regulations and ordinances.

cc: Kevin Lombardoizzi – TIMET, hard copy and on disk
Victoria Tyson-Bloyd – Tyson Contracting, Inc., hard copy and on disk
Shannon Harbour, Nevada Division of Environmental Protection, Carson City, Nevada,
on disk
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Jay Steinberg – NERT, by electronic mail
Allan DeLorme – NERT, by electronic mail
John Pekala – NERT, by electronic mail
Curt Richards – Olin, by electronic mail
Jay Gear – Olin, by electronic mail
Ed Modiano – OSSM GWTS, by electronic mail
Chuck Elmendorf –Stauffer, by electronic mail
Nick Pogoncheff –Stauffer, by electronic mail
George Crouse –Syngenta, by electronic mail
Enoe Marcum – WAPA, by electronic mail

Attachment A - TIMET Response

1. Figure 2-1 and 2-2, please present and discuss these figures in Section 3.0 in the next report. Currently, these figures are provided without any discussion in the Deliverable.

TIMET Response: TIMET agrees to present and discuss these figures in Section 3.0 of the next annual report.

2. Section 3.2.1, page 3-4 and related sections on the cation-anion balance (CAB), NDEP provides the following comments:

TIMET Response: As a general response, TIMET proposes to discuss CAB and TDS evaluations on an event-specific basis instead of a combined annual basis to enhance clarity. Tables will also be separated by event for reference.

- a. Section 3.2.1, Page 3-4, well CLDR-1 was referenced as not meeting 5% CAB criterion; NDEP notes that this statement is accurate for the 2nd Semester 2011 (2ndS2011) sampling event. However, Table 3-47 indicates that no sample was collected for the 1st Semester 2012 (1S2012) sampling event, and therefore no CAB evaluation was conducted. Please revise the text to accurately reflect the state of CAB analyses for this well.

TIMET Response: The text in Section 3.2.1, Page 3-4 is accurate as it was originally written. The statement indicates that the 5% CAB criterion was not met for *at least one* of the events during this reporting period. However, in order to clarify the information, the results of the three CAB and TDS evaluations are now discussed by event.

Please see revised text in Section 3.2.1.

- b. Section 3.2.1, Page 3-4, wells TPMZ-107 and TPMZ-110 are referenced as not having been evaluated for CAB due to incomplete datasets. However, data is available for one of the two sampling events reported, and CAB evaluation was conducted for these wells. Please revise the text to accurately reflect the state of CAB analyses for these wells.

TIMET Response: The text in Section 3.2.1, Page 3-4 2 was revised to discuss results on an event-specific basis for better clarity. Additional discussion was added to the fourth paragraph in Section 3.2.1 to indicate the reasons why CAB/TDS evaluations are not conducted on some wells. Specifics reasons for each well are given in the event-specific Tables 3-47A and 3-47B.

To address the comment specifically, TMPZ-107 and TMPZ-110 in 2nd Semester, 2011 do not require sampling of a complete set of cations and anions, based on the GW sampling plan (TIMET 2010a). Therefore, evaluations of CAB and TDS are not applicable.

There is currently no requirement to analyze the complete set of cations and anions for every well sampled for any given event in the TIMET GW sampling plan.

Please see revised text in Section 3.2.1 and Tables 3-47A and 3-47B.

- c. Section 3.2.1, Page 3-4, states that CAB evaluations were not conducted for several of the wells due to an incomplete data set. Please describe how data sets were determined to be incomplete, discuss the reasons that incomplete data sets were produced, and describe the corrective actions that will be taken to produce complete data sets in the future.

TIMET Response: The GW sampling conducted semi-annually at TIMET is based on an approved GW sampling program (TIMET 2010a). Based on that program, not every well sampled for each semi-annual event is required to have a complete set of cations and anions analyzed. A complete set of cations and anions include four major cations, seven major anions, and TDS. If any one of the 12 analytes is missing, then calculations requiring that analyte are not conducted.

There are currently three reasons why results may not be present for all 39 wells for each sampling event: (1) not all wells require sampling in both semi-annual events, so the reported results may vary between events; (2) not all wells require the analysis of a full suite of cations or anions in both semi-annual events, so calculation is not applicable; and (3) occasionally, a well may not produce sufficient water to analyze all analytes. This information has been added to the fourth paragraph in Section 3.2.1. In addition, the CAB tables (revised Tables 3-47A and 3-47B) have been modified to include a note regarding the status of each well for which a complete set of cations/anions was not available.

At this time, no changes to the GW sampling plan are proposed.

Please see revised text in Section 3.2.1 and revised Tables 3-47A and 3-47B with embedded notes.

- d. Table 3-47, the tabulated CAB percent difference, TDS ratio and EC ratio values do not appear to follow the referenced NDEP guidance for use of significant figures. Please review and follow NDEP guidance on this topic for resubmission.

TIMET Response: In preparation for this report, two Excel spreadsheets were combined to form the annual CAB table (Table 3-47). In doing so, some formatting was inadvertently altered. According to NDEP guidance for significant figures, the CAB percent difference, TDS ratio, and EC ratio should be reported to two significant figures. TIMET does not see any TDS ratio incorrectly reported; however, CAB percent differences and EC ratios have been revised on the event-specific tables (now Tables 3-47A and 3-47B).

Please see revised Tables 3-47A and 3-47B.

- e. Table 3-47, the formula weights for bicarbonate, fluoride, perchlorate, and sulfate are incorrect in the live spreadsheet. NDEP carried the correct formula weights for the above mentioned anions through the remainder of the calculations and notes that data flags were unchanged. Please update working files for future Deliverables.

TIMET Response: Formula weights for all cations and anions were reviewed by TIMET. As a general rule, TIMET takes the atomic weight of each component directly from the IUPAC Technical Report 2005 periodic table and rounds the final formula weight to 5 significant figures. This yields slightly different values for some species than rounding the original atomic weight to 5 significant figures before calculation of formula weight. TIMET will concede to the later method of starting with atomic weights rounded to 5 significant figures prior to calculating the formula weight. For clarity, calculation of each species identified in the NDEP comment has been included below with an appropriate action listed for each. Please let TIMET know if the corrected formula weights meet NDEP expectations.

Bicarbonate: Bicarbonate alkalinity is reported as CaCO_3 . As such, the formula weight is calculated as $\text{Ca} = 40.078$, $\text{C} = 12.011$, $3\text{O} = 15.999 \times 3 = 47.997$. The sum for $\text{CaCO}_3 = 100.09$. The valence for CaCO_3 is 2, so the equivalent weight for CaCO_3 is $100.09/2$, as used in the current Excel spreadsheet formula. No change is proposed for bicarbonate equivalent weight.

Fluoride: Fluoride atomic weight reported is a typographical error and should be 18.998. This error has been corrected and will be correct in future deliverables.

Perchlorate: Perchlorate is reported as ClO_4^- . As such the formula weight is calculated as $\text{Cl} = 35.453$, $4\text{O} = 15.999 \times 4 = 63.996$. The sum for $\text{ClO}_4^- = 99.449$; divided by a valence of 1. TIMET has changed the formula weight used in the Excel spreadsheet for future deliverables from 99.451 to 99.449.

Sulfate: Sulfate is reported as SO_4^{2-} . As such the formula weight is calculated as $\text{S} = 32.065$, $4\text{O} = 15.999 \times 4 = 63.996$. The sum for sulfate = 96.064; divided by a valence of 2. TIMET has changed the formula weight used in the Excel spreadsheet for future deliverables from 96.063 to 96.064.

Please see revised Excel spreadsheet of Tables 3-47A and 3-47B.

- f. Table 3-47, CAB and associated correctness checks are shown for 2ndS2012 and 1stS2012, however calculations are not provided for 2ndS2012 in the live spreadsheet. Please provide calculations for 2ndS2012.

TIMET Response: The events included in this report are for 2nd Semester, 2011 and 1st Semester, 2012. When combining tables from two sampling events, the raw calculation tables for 2nd Semester, 2011 were not added to the Excel file. Table 3-47 has been divided into two event-specific tables (Tables 3-47A and 3-47B). Each Excel file contains the raw calculations for each event. In addition, text in Section 3.2.1 has been revised to reflect the event-specific tables.

Please see revised Tables 3-47A and 3-47B and text in Section 3.2.1.

- g. Table 3-47, samples with incomplete data sets, for which CAB evaluations were not conducted, are qualified in the right hand column as “No qualifier”; this can be misleading. Please change the entry to indicate that analysis was not performed (e.g., “Not qualified”).

TIMET Response: Tables 3-47A and 3-47B have been revised to use the phrase “Not qualified” when CAB/TDS evaluations were not conducted.

Please see revised Tables 3-47A and 3-47B.

- h. Table 3-47, samples that fail both the CAB check and the TDS ratio and/or EC ratio checks (specifically CLD4-R, MW-5, PC-024, PC-28) should be qualified as R-CAB&TDS. Please revise as necessary.

TIMET Response: TIMET respectfully disagrees with the rejection of data when the CAB and TDS measured/sum are out of acceptance criteria. Scenario number 4 for which rejection is required in the NDEP CAB guidance (NDEP September 28, 2009) states that: Cation-anion balance does not check; TDS measured/sum *AND* TDS:EC ratio does not check. In each case identified in the comment, the TDS:EC ratio was acceptable, so data were simply qualified as estimated for CAB and TDS (scenario numbers 2 and 3) and the qualifiers were combined (J-CAB and J-TDS). In none of the results identified in the comment were all three evaluations unacceptable. TIMET proposes that no changes be made to this portion of Tables 3-47A and 3-47B or qualifiers in the associated database.

- i. Please note that the above comments may necessitate revision and resubmittal of the related EDD files. Please provide these files once these issues have been resolved.

TIMET Response: As stated in the response to comment 2h, TIMET does not believe that the associated database or NDEP EDD requires revision. As such, no database files were changed or resubmitted.

3. Section 3.2.2., pages 3-5, as NDEP has noted previously, TIMET has presented no information in this Deliverable or to date to support the concept of an off-site plume being the source of contamination. Please provide this information or remove these statements from all future Deliverables.

TIMET Response: As requested, statements of this sort will be removed from future deliverables.

4. Section 3.2.4, page 3-8, TIMET indicates that the PCE plume is stable and well defined. NDEP is not aware of any plume stability calculations that have been completed. In addition, the contours on the presented figures are open and the plume limits are not defined. Please clarify this statement or provide the appropriate calculations and define the limits of the plume in future Deliverables.

TIMET Response: Statements of this sort will be clarified in future deliverables.

5. Section 3.2.4, page 3-8, please remove unsupported statements such as TIMET's conjecture on the source of TTHMs from all future Deliverables. NDEP requires such statements to be supported by data or withdrawn.

TIMET Response: Unsupported statements such as conjecture on the source of TTHMs will not be included in future deliverables.

6. Appendix C, Figure C-34, Uranium, well TIMET MW-5 appears to be demonstrating a trend of increasing concentrations since January 2009. In addition, the concentrations in this well now exceed the USEPA MCL and exceed the historic concentrations presented on this figure. Please discuss this matter in the next report. It is noted that this issue was not discussed in Section 3.2.2 of the Deliverable.

TIMET Response: The trend of increasing uranium concentrations in well TIMET MW-5 will be discussed in the next annual report, if the trend continues.

TIMET. 2010a. "Groundwater Remedial Action Operation and Maintenance Monitoring Sampling and Analysis Plan, TIMET, Henderson, Nevada" February 2010

TABLE 3-47A

CATION-ANION BALANCE EVALUATION FOR 2ND SEMESTER 2011
GROUNDWATER MONITORING REPORT
2ND SEMESTER 2011 AND 1ST SEMESTER 2012

Titanium Metals Corporation
Henderson, Nevada

Well ID	Cation Sum (meq/L) ¹	Anion Sum (meq/L) ²	Difference (%) ³	CAB Results	TDS Measured (mg/L)	TDS Calculated (mg/L)	TDS Ratio ⁴	TDS Results ⁵	TDS Measured (mg/L)	EC Measured (uS/cm)	EC Ratio TDS:EC ⁶	EC Results ⁷	Qualifier
AA-01	58	60	2.1	Acceptable	3600	3600	1.0	Acceptable	3600	5070	0.71	Acceptable	Not qualified
AA-09	85	86	0.78	Acceptable	6100	5200	1.2	Acceptable	6100	7520	0.81	Acceptable	Not qualified
AA-27	61	60	0.47	Acceptable	4300	3700	1.1	Acceptable	4300	4880	0.88	Acceptable	Not qualified
AA-UW1	58	57	1.5	Acceptable	4000	3600	1.1	Acceptable	4000	4680	0.85	Acceptable	Not qualified
BRW-R1	50	51	1.5	Acceptable	3600	3200	1.1	Acceptable	3600	4390	0.82	Acceptable	Not qualified
CLD1-R	47	55	7.7	Unacceptable	3800	3100	1.2	Acceptable	3800	5640	0.67	Acceptable	J-CAB
CLD4-R	77	89	7.1	Unacceptable	5100	5200	0.99	Unacceptable	5100	9910	0.51	Acceptable	J-CAB/J-TDS
CMT-101	Limited cation and anion analysis required by groundwater monitoring program.												
DBMW-1	82	84	1.3	Acceptable	5600	5200	1.1	Acceptable	5600	8010	0.65	Acceptable	Not qualified
DBMW-3	120	130	2.6	Acceptable	8000	7600	1.0	Acceptable	8000	7620	0.73	Acceptable	Not qualified
DBMW-4	81	82	0.86	Acceptable	5300	5000	1.1	Acceptable	5300	11480	0.70	Acceptable	Not qualified
DBMW-5	79	78	0.58	Acceptable	5000	4700	1.1	Acceptable	5000	6670	0.79	Acceptable	Not qualified
EWQAL-12	73	75	1.1	Acceptable	5200	4500	1.2	Acceptable	5200	6500	0.77	Acceptable	Not qualified
J2D1-R2	100	110	4.0	Acceptable	7400	6300	1.2	Acceptable	7400	7280	0.71	Acceptable	Not qualified
J2D2-R2	82	86	2.6	Acceptable	5700	4800	1.2	Acceptable	5700	10570	0.70	Acceptable	Not qualified
J2D4	140	160	6.8	Unacceptable	9800	8700	1.1	Acceptable	9800	7670	0.74	Acceptable	Not qualified
J2U2	66	72	4.4	Acceptable	4800	4000	1.2	Acceptable	4800	14800	0.66	Acceptable	J-CAB
M-129	Limited cation and anion analysis required by groundwater monitoring program.												
M-130	Limited cation and anion analysis required by groundwater monitoring program.												
MW-3R	32	34	3.9	Acceptable	2200	2000	1.1	Acceptable	2200	8760	0.64	Acceptable	Not qualified
MW-4	41	43	2.2	Acceptable	3100	2700	1.2	Acceptable	6100	9040	0.67	Acceptable	Not qualified
MW-5	50	55	4.1	Acceptable	3600	3300	1.1	Acceptable	2200	3380	0.65	Acceptable	Not qualified
MW-6R	39	43	5.0	Acceptable	3000	2500	1.2	Acceptable	3100	4050	0.77	Acceptable	Not qualified
PC-024	70	170	41	Unacceptable	8400	9600	0.87	Unacceptable	3600	5160	0.70	Acceptable	Not qualified
PC-124	110	120	2.7	Acceptable	7900	6900	1.1	Acceptable	3000	4070	0.74	Acceptable	Not qualified
PC-28	37	84	39	Unacceptable	6800	5400	1.2	Acceptable	8400	15110	0.56	Acceptable	J-CAB/J-TDS
PC-54	75	72	2.1	Acceptable	5700	4700	1.2	Acceptable	7900	10420	0.76	Acceptable	Not qualified
PC-67	150	170	5.2	Acceptable	11000	9700	1.1	Acceptable	6800	8480	0.80	Acceptable	J-CAB
POU-3	120	130	1.8	Acceptable	7900	7400	1.1	Acceptable	5700	6280	0.91	Acceptable	Not qualified
TMMW-101	26	28	3.5	Acceptable	1800	1600	1.1	Acceptable	11000	16560	0.66	Acceptable	Not qualified
TMMW-102	Not required for sampling by groundwater monitoring program.												
TMMW-103	Not required for sampling by groundwater monitoring program.												
TMMW-104	23	24	1.9	Acceptable	1600	1400	1.1	Acceptable	7900	12070	0.65	Acceptable	Not qualified
TMPZ-105	Limited cation and anion analysis required by groundwater monitoring program.												
TMPZ-106	Limited cation and anion analysis required by groundwater monitoring program.												
TMPZ-107	Limited cation and anion analysis required by groundwater monitoring program.												
								NA	1800	2540	0.71	Acceptable	Not qualified
								NA	Not required for sampling by groundwater monitoring program.				
								NA	Not required for sampling by groundwater monitoring program.				
								Acceptable	1600	2290	0.70	Acceptable	Not qualified
								NA	7700	12600	0.61	Acceptable	Not qualified
								NA	5700	10330	0.55	Acceptable	Not qualified
								NA	15000	25740	0.58	Acceptable	Not qualified

TABLE 3-47A

CATION-ANION BALANCE EVALUATION FOR 2ND SEMESTER 2011
GROUNDWATER MONITORING REPORT
2ND SEMESTER 2011 AND 1ST SEMESTER 2012

Titanium Metals Corporation
Henderson, Nevada

Well ID	Cation Sum (meq/L) ¹	Anion Sum (meq/L) ²	Difference (%) ³	CAB Results	TDS Measured (mg/L)	TDS Calculated (mg/L)	TDS Ratio ⁴	TDS Results ⁵	TDS Measured (mg/L)	EC Measured (uS/cm)	EC Ratio TDS:EC ⁶	EC Results ⁷	Qualifier
TMPZ-108	Limited cation and anion analysis required by groundwater monitoring program.							NA	14000	22700	0.62	Acceptable	Not qualified
TMPZ-109	Limited cation and anion analysis required by groundwater monitoring program.							NA	5700	8340	0.68	Acceptable	Not qualified
TMPZ-110	Limited cation and anion analysis required by groundwater monitoring program.							NA	4900	6670	0.73	Acceptable	Not qualified

Notes:

CAB Cation/anion balance mg/L Milligram per liter
 EC Electrical conductivity TDS Total dissolved solids
 meq/L Milliequivalent per liter uS/cm MicroSiemens per centimeter

- 1 Cations summed include: Calcium, magnesium, sodium, and potassium.
- 2 Anions summed include: Bicarbonate, carbonate, chloride, fluoride, nitrate-nitrogen, perchlorate, and sulfate.
- 3 QC criterion for CAB: absolute percent difference less than or equal to 5 percent; when the anion sum is between 10 and 800 meq/L.
- 4 Ratio of laboratory measured TDS to calculated TDS.
- 5 QC criterion for TDS measured versus calculated: ratio of TDS measured to TDS calculated greater than or equal to 1.0 and less than or equal to 1.2.
- 6 QC limits for TDS versus ED ratio is 0.54 to 0.96
- 7 J-TDS indicates that TDS value for the given well is estimated; J-CAB indicates that the values for the 11 cation/anions are estimated for a given well.
 The qualification of results based CAB includes the "J" qualifier with the associated comment code "p" or "q" in the TIMET analytical database

TABLE 3-47B
CATION-ANION BALANCE EVALUATION FOR 1ST SEMESTER 2012
GROUNDWATER MONITORING REPORT
2ND SEMESTER 2011 AND 1ST SEMESTER 2012

Well ID	Cation Sum (meq/L) ¹	Anion Sum (meq/L) ²	Difference (%) ³	CAB Results	TDS Measured (mg/L)	TDS Calculated (mg/L)	TDS Ratio ⁴	TDS Results ⁵	TDS Measured (mg/L)	EC Measured (uS/cm)	EC Ratio TDS:EC ⁶	EC Results ⁷	Qualifier
AA-01	71	68	2.1	Acceptable	5700	4400	1.3	Unacceptable	5700	5347	1.1	Unacceptable	J-TDS
AA-09	87	89	1.4	Acceptable	6400	5400	1.2	Acceptable	6400	8190	0.78	Acceptable	Not qualified
AA-27	60	62	1.8	Acceptable	4500	3900	1.2	Acceptable	4500	5220	0.86	Acceptable	Not qualified
AA-UW1	57	57	0.24	Acceptable	4100	3500	1.2	Acceptable	4100	4981	0.82	Acceptable	Not qualified
BRW-R1	50	54	4.0	Acceptable	3700	3300	1.1	Acceptable	3700	4340	0.85	Acceptable	Not qualified
CLD1-R	Insufficient groundwater in well to sample.												
CLD4-R	82	90	4.5	Acceptable	6000	5300	1.1	Acceptable	6000	9790	0.61	Acceptable	Not qualified
CMT-101	Limited cation and anion analysis required by groundwater monitoring program.												
DBMW-1	84	84	0.40	Acceptable	6000	5200	1.1	Acceptable	6000	8030	0.67	Acceptable	Not qualified
DBMW-3	130	130	2.1	Acceptable	9000	8100	1.1	Acceptable	9000	7294	0.82	Acceptable	Not qualified
DBMW-4	81	77	2.4	Acceptable	5700	4800	1.2	Acceptable	5700	11330	0.79	Acceptable	Not qualified
DBMW-5	77	76	1.0	Acceptable	5500	4600	1.2	Acceptable	5500	6721	0.85	Acceptable	Not qualified
EWQAL-12	73	71	1.4	Acceptable	5200	4300	1.2	Acceptable	5200	6539	0.84	Acceptable	Not qualified
J2D1-R2	100	100	0.90	Acceptable	7300	5900	1.2	Acceptable	7300	6548	0.79	Acceptable	Not qualified
J2D2-R2	80	78	1.7	Acceptable	5800	4500	1.3	Unacceptable	5800	10670	0.68	Acceptable	Not qualified
J2D4	130	140	1.3	Acceptable	9800	7800	1.3	Unacceptable	9800	7416	0.78	Acceptable	J-TDS
J2U2	71	67	3.1	Acceptable	4900	3900	1.2	Acceptable	4900	15570	0.63	Acceptable	J-TDS
M-129	Limited cation and anion analysis required by groundwater monitoring program.												
M-130	Limited cation and anion analysis required by groundwater monitoring program.												
MW-3R	41	44	3.9	Acceptable	2900	2500	1.2	Acceptable	2900	6200	0.79	Acceptable	Not qualified
MW-4	55	41	15	Unacceptable	3100	2800	1.1	Acceptable	3100	7640	0.80	Acceptable	Not qualified
MW-5	41	55	15	Unacceptable	4000	3100	1.3	Unacceptable	4000	6980	0.83	Acceptable	Not qualified
MW-6R	38	41	3.2	Acceptable	2900	2400	1.2	Acceptable	2900	4330	0.67	Acceptable	Not qualified
PC-024	160	160	0.48	Acceptable	12000	9500	1.3	Unacceptable	12000	3640	0.85	Acceptable	J-CAB
PC-124	120	120	0.59	Acceptable	8400	6800	1.2	Acceptable	8400	4930	0.81	Acceptable	J-CAB/J-TDS
PC-28	83	75	5.2	Unacceptable	7000	5000	1.4	Unacceptable	7000	3840	0.76	Acceptable	Not qualified
PC-54	59	62	2.2	Acceptable	4300	3700	1.2	Acceptable	4300	15550	0.77	Acceptable	J-TDS
PC-67	150	160	2.2	Acceptable	12000	9200	1.3	Unacceptable	12000	10830	0.78	Acceptable	Not qualified
POU-3	89	91	1.5	Acceptable	6400	5500	1.2	Acceptable	6400	7809	0.90	Acceptable	J-CAB/J-TDS
TMMW-101	26	28	3.7	Acceptable	2000	1700	1.2	Acceptable	2000	6395	0.67	Acceptable	Not qualified
TMMW-102	16	17	3.8	Acceptable	1200	930	1.3	Unacceptable	1200	15710	0.76	Acceptable	J-TDS
TMMW-103	33	34	0.86	Acceptable	2400	2000	1.2	Acceptable	2400	8674	0.74	Acceptable	Not qualified
TMMW-104	30	32	3.1	Acceptable	2400	1900	1.2	Acceptable	2400	2643	0.76	Acceptable	Not qualified
TMPZ-105	100	110	1.1	Acceptable	7900	6400	1.2	Acceptable	7900	1639	0.73	Acceptable	J-TDS
TMPZ-106	Limited cation and anion analysis required by groundwater monitoring program.												
TMPZ-107	230	250	3.2	Acceptable	16000	14000	1.2	Acceptable	16000	3180	0.75	Acceptable	Not qualified
TMPZ-108	Limited cation and anion analysis required by groundwater monitoring program.												
TMPZ-109	Limited cation and anion analysis required by groundwater monitoring program.												
TMPZ-110	84	80	2.2	Acceptable	5800	4900	1.2	Acceptable	5800	2810	0.85	Acceptable	Not qualified
										11140	0.71	Acceptable	Not qualified
										5500	0.63	Acceptable	Not qualified
										8702	0.63	Acceptable	Not qualified
										16000	0.67	Acceptable	Not qualified
										23970	0.67	Acceptable	Not qualified
										14000	0.74	Acceptable	Not qualified
										19000	0.74	Acceptable	Not qualified
										6000	0.76	Acceptable	Not qualified
										7922	0.76	Acceptable	Not qualified
										5800	0.72	Acceptable	Not qualified

Notes:

CAB Cation/anion balance
EC Electrical conductivity
meq/L Milliequivalent per liter
mg/L Milligram per liter
TDS Total dissolved solids
uS/cm MicroSiemens per centimeter

TABLE 3-47B
CATION-ANION BALANCE EVALUATION FOR 1ST SEMESTER 2012
GROUNDWATER MONITORING REPORT
2ND SEMESTER 2011 AND 1ST SEMESTER 2012

Notes (continued):

- 1 Cations summed include: Calcium, magnesium, sodium, and potassium.
- 2 Anions summed include: Bicarbonate, carbonate, chloride, fluoride, nitrate-nitrogen, perchlorate, and sulfate.
- 3 QC criterion for CAB: absolute percent difference less than or equal to 5 percent; when the anion sum is between 10 and 800 meq/L.
- 4 Ratio of laboratory measured TDS to calculated TDS.
- 5 QC criterion for TDS measured versus calculated: ratio of TDS measured to TDS calculated greater than or equal to 1.0 and less than or equal to 1.2.
- 6 QC limits for TDS versus ED ratio is 0.54 to 0.96
- 7 J-TDS indicates that TDS value for the given well is estimated; J-CAB indicates that the values for the 11 cation/anions are estimated for a given well.

The qualification of results based CAB includes the "J" qualifier with the associated comment code "p" or "q" in the TIMET analytical database